Shankar Kumar Selvaraja
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2nd Dec 2024

To Whom It May Concern

Open Tender for Automation System (PLC & SCADA) to ETP operations.

This is an RFQ (Request for Quote) forthe Automation System (PLC & SCADA) to operate/Control/ Measure/ Monitor ETP parameters as part of an open tender for the Centre for Nano Science and Engineering (CeNSE) at IISc, Bangalore.

CeNSE is a multidisciplinary research department at IISc that houses a 14,000 sq. ft. cleanroom and characterization facility used by 50 faculty members from various disciplines at IISc. CeNSE also runs a program called the Indian Nanoelectronics Users Program (INUP) which has allowed 4200 participants from more than 700 universities and institutes all over India to use the facilities at CeNSE. Consequently, any tool in CeNSE receives significant exposure to the scientific community at IISc and beyond.The vendors are requested to factor in the value of this exposure intotheir quotes.Details of existing facilities and the INUP program can be gleaned from:
http://nnfc.cense.iisc.ac.in/
http://www.mncf.cense.iisc.ac.in/
https://www.inup.cense.iisc.ac.in/

Procedure

1. Vendors will be required to submit a technical proposal and a commercial proposal in **two separate sealed envelopes**. Only vendors who meet the technical requirements will be considered for the commercial negotiation.**PLEASE MAKE SURE THE SITE VISIT IS DONE BEFORE SUBITTING THE BID. ONLY BIDS FROM VENDORS WHO HAVE VISITED THE SITE WILL BE ENTERTAINED.**
2. **The deadline for submission of proposals is the 23rd of December 2024, 5:30 pm Indian Standard Time.** Proposals should arrive at the Main office, GF-15, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India, by the above deadline.
3. The decision of the purchase committee will be final.
4. The Bidder should belong to either class 1 or class 2 suppliers distinguished by their “local content” as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter and should provide all the required supporting documents.

a) Class 1 supplier: Goods and services should have local content equal to or more than 50%.

b) Class 2 supplier: Goods and services should have local content equal to or more than 20 % and less than 50%).

5. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
6. Purchase preference as defined by the recent edits to GFR (within the “margin of purchase preference”) will be given to the Class-1 supplier.

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7. The technical proposal should contain a compliance table with 5 columns. The first column must list the technical requirements, in the order that they are given in the technical configuration below. The second column should describe your compliance in a "Yes" or "No" response. If "No" the third column should provide the extent of the deviation (please provide quantitative responses). The fourth column should state the reasons for the deviation, if any. The fourth column should also contain the make and model of the components/parts to be used in the installation.
8. Any additional capabilities or technical details that you would like to bring to the attention of the purchase committee can be listed at the end of the technical table.
9. In the commercial bid, please provide the itemized cost of the different subsystems, along with possible breakups.
10. Provide itemized cost for *required* spares for 2 years of operation. Please note, the cleanroom is expected to be operational 24x7 and breakdowns should be minimal or nil.
11. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
12. The quotations should be on FOR-IISc Bangalore basis in INR only.
13. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.
14. As an additional option, provide the cost of an annual maintenance contract (AMC) for 1-year, post-warranty. The AMC must cover 1 scheduled and 1 emergency visit per year. The AMC cost must also include an itemized list of spares that are essential for the scheduled visits.
15. The RFQ must include references to 3 previous installations, preferably in India. Please provide the names and contact addresses of the referees, so that the committee can contact them independently.
16. The bidder may visit to NNFC Office GF20 Ground Floor Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore-560012 INDIA to look the Liquid Nitrogen tank before submission of tender, with prior intimation.
17. The offer shall be valid at least 90 Days from the date of opening of the commercial bid.
18. Any questions can be directed to Mr. Gajendra M, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India. (gajendram@iisc.ac.in)

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Technical Requirements

SL NO.	Description of the requirements
1	The project involves the complete automation of the effluent treatment plant (ETP) using a Programmable Logic Controller (PLC) system. The scope includes the design, supply, installation, and commissioning of all necessary field instruments, sensors, and the Mitsubishi PLC & SCADA system. The entire automation process will be integrated with the master SCADA server, ensuring centralized monitoring and control.
2	The ETP automation system will be integrated with the Building Management System (BMS) software, allowing seamless communication and control between the ETP processes and the overall facility management systems..
3	All tanks within the ETP will be equipped with sensors to monitor and indicate three specific levels. The tanks include: NaOH Tank Acid Alkali Collection Tank Acid Alkali Equalization Tank Neutralization Tank Fluoride Monitoring Tank RO Reject Tank HF Collection Tank HF Equalization Tank Reaction Tank Polymer Tank $CaCl_2$ Tank These sensors will provide real-time data to the PLC and SCADA system, ensuring accurate monitoring and control of tank levels.
4	ON/OFF/Trip Indication Lamps will be installed to indicate the current status of various processes. This will help operators quickly assess the operational state of the system.
5	A hooter will be installed to sound an alarm in the event of any process malfunction. This audible alert will prompt immediate attention to any issues within the system.
6	The existing Mitsubishi PLC panel contains an outdated PLC model and IO modules, necessitating a complete replacement. The new PLC system will include updated modules, wiring, front and back-end panel components, relays, push buttons, and a Human-Machine Interface (HMI) for improved functionality and reliability.
7	A 10-inch HMI display will be installed for real-time monitoring of the process flow. This interface will allow operators to view and control the various stages of the treatment process.
8	Three-Phase Direct On-Line (DOL) Feeders: The following DOL feeders are required for various pumps and stirrers within the ETP: 0.55 KW DOL Feeder for the Acid Alkali Collection Shifting Pump 0.75 KW DOL Feeder for the Equalization Tank Shifting Pump 0.75 KW DOL Feeder for the Neutralization Tank Shifting Stirrer 0.75 KW DOL Feeder for the Neutralization Tank Shifting Pump 0.75 KW DOL Feeder for the RO Rejection Transfer Pump 0.75 KW DOL Feeder for the HF Collection Shifting Pump

	0.37 KW DOL Feeder for the Equalization Tank Shifting Pump 0.75 KW DOL Feeder for the Reaction Tank Stirrer 0.75 KW DOL Feeder for the Reaction Tank Shifting Pump 0.75 KW DOL Feeder for the Polymer Dosing Mixer 1.5 KW DOL Feeder for the Filter Press
9	Single-Phase DOL Feeders: The following single-phase DOL feeders are required for dosing pumps, solenoid valves, and meters: 0.1 KW Power Feeder for HCL Dosing Pump 0.1 KW Power Feeder for NaOH Dosing Pump 0.1 KW Power Feeder for $CaCl_2$ Dosing Pump 0.1 KW Power Feeder for Polymer Dosing Pump 0.1 KW Power Feeder for Solenoid Valve 0.1 KW Power Feeder for pH Meter and Fluoride Meter
10	Supply of settling tank (1600x1600x2300)
11	Supply of Dual media filter(0.4m dia x1.5m Ht)
12	Supply of Water quality analyzers, Ph conductivity, TSS
13	Supply of Manually operated valve, Size 65mm
14	Valve with electrical Actuator
15	This comprehensive setup will ensure efficient and reliable operation of the Effluent Treatment Plant, with enhanced monitoring and control capabilities integrated into the facility's overall management system.

Thanking you,

Shankar Kumar Selvaraja, Ph.D.
Associate Professor
Centre for Nano Science and Engineering Indian
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Annexure:1

Details of the Bidder

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Details of the Bidder

Sl. No	Items	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License, (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name
Designation, Seal

Date:

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Annexure-2:

Declaration regarding experience:

To,
Shankar Kumar Selvaraja,
Ph.D.Associate Professor
Centre for Nano Science and Engineering Indian
Institute of Science, Bangalore, India 560012.
E-mail:
shankarks@iisc.ac.in

Ref: Tender No:
XXXXXXXXXDated: XXXXX

Supply Automation System (PLC & SCADA) to ETP operations at Centre for Nano science and Engineering Department, IISc Bangalore.

Sir,

I've carefully gone through the Terms & Conditions contained in the above referredtender. I hereby declare that my company / firm has years of experience in
supplying and installation of Automation System (PLC & SCADA) to ETP operations.

Signature of the Bidder

Name
Designation, Seal Date:

Shankar Kumar Selvaraja
Associate Professor
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Annexure-3:

Declaration regarding trackrecord

To,
Shankar Kumar
Selvaraja, Ph.D.
Associate Professor
Centre for Nano Science and Engineering Indian
Instituteof Science, Bangalore, India 560012.
E-mail: shankarks@iisc.ac.in

Ref: Tender No:
XXXXXXX

Dated: XXXXX

Supply of Automation System (PLC & SCADA) to ETP operations at Centre for Nano Science and Engineering Department, IISc Bangalore.

Sir,
I've carefully gone through the Terms & Conditions contained in the above referred tender. I herebydeclare that my company/ firm is not currently debarred / blacklisted by any Government / Semi Government organizations / institutions in India or abroad. I further certify that I'm competent officer in my company / firm to make this declaration.

Or

I declare the following

Sl.No	Country in which the company is Debarred /blacklisted / case is Pending	Blacklisted / debarred by Government / Semi Government/Organizations /Institutions	Reason	Since when and for how long

Signature of the Bidder

Name
Designation, Seal Date:

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Annexure – 4:

Declaration for acceptance of terms and conditions

To,
Shankar Kumar Selvaraja,
Ph.D.Associate Professor
Centre for Nano Science and Engineering Indian
Instituteof Science, Bangalore, India 560012.
E-mail: shankarks@iisc.ac.in

Ref: Tender No:
XXXXXXDated: XXXX

Supply of Automation System (PLC & SCADA) to ETP operations at Centre for Nano Science and Engineering Department Engineering Department, IISc Bangalore.

Sir,
I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the
Bidder)

Name
Designation, Seal Date:

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Annexure – 5:

Details of items quoted:

a. Company Name
b. Product Name
c. Part / Catalogue number
d. Product description / main features
e. Detailed technical specifications
f. Remarks

Instructions to bidders:

1. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder should attach product brochures along with technical bid.
3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.